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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,417	12/08/2003	Stephen J. Gorton	4011.002	9776

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EXAMINER	
CHAWLA, JYOTI	

ART UNIT	PAPER NUMBER
1761	

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/728,417	GORTON ET AL.	
	Examiner	Art Unit	
	Jyoti Chawla	1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. In the background of the invention, on line 12, "proteins on their outer surfaces" should be "pathogens on their outer surfaces".

2. Page 2, paragraph 2 names citrus specific pathogens and in the example "Diplodia natalnesis" should be "Diplodia natalensis".

3. Page 4, paragraph 2 on line 2, "mycelium growth" should be "mycelial growth" or "growth of mycelium". Correction is required. See MPEP § 608.01(b).

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1,3 and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/688,671. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the copending applications recite an enzyme and catalyst based antifungal agent and various methods of its use. The main emphasis of both the applications is to prevent the pre and post harvest fungal invasion of fungi on fresh fruits and vegetables.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112, second paragraph

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites a product consisting of plant derived organic enzymes and catalysts, that prevents or inhibits a fungal invasion on fruits and vegetables by enzymatic break down of the cell walls, the protein content of fungi, mycelia and spores, which is neutralized on contact by the formula. It is unclear whether "consisting of" is intended to be a claim limitation for the use of enzymes and catalysts only. Further, it is

not clear as to what plant based enzymes and catalysts are being included in the formulation because as recited there is no formula or product disclosed and a generic class of plant-derived biocides has been claimed. Also there is no mention of the names or even category of enzymes and catalysts being referred to in the proposed formula and without such details the metes and bounds of the patent protection are unclear. In addition the use of "neutralized on contact by the formula" is unclear and confusing. It is also not clear what is "the formula"? Is it the product? Clarification and/or correction are required.

8. To expedite prosecution, "consisting " would be considered to mean, "comprising" and "neutralizing the protein" would be considered an inherent result and effect of the action of the enzyme/catalyst.

9. Claims 2-6 recite "The process of claim 1", however, there is no process recited in claim 1. Clarification and/or correction are required.

10. For examination purposes only the "product" recited in claim 1 would be considered to mean "process" and the steps recited in claims 2-6 will be considered accordingly.

11. Claims 2 and 3 talk about "particle" which is ambiguous as well, particle size is a term used for dry powder and since the formulation recited by the applicant is in liquid form, it is not clear as to what "particle" stands for. However, to expedite prosecution, "particle " would be considered to mean, "droplet".

12. Claim 3 recites the atomization step. Language of claim 3 is vague and indefinite. The phrase "atomization/fumigation misting of said fruits and vegetables" may mean the

fruit/vegetable is atomized and sprayed or it could also mean the liquid fungicide is atomized and sprayed on to the surface of the fruit. Clarification and/or correction are required.

13. Claims 4-6 recite the steps of dipping, soaking and drenching the fruits and vegetables in water based liquid or wax substance. The language of the claim is vague and indefinite as to the kind of wax and the specific details about the enzyme(s) and catalyst(s) and amount of fungicidal substance in the wax. Clarification and/or correction are required.

Claim Rejections - 35 USC § 112, first paragraph

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 1-6 are rejected less than 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. As disclosed, the applicant's intent seems to be disclosing a product and the process of application of a liquid formula consisting of plant-derived, non-toxic organic enzymes and catalysts; however, the body of claims does not provide any details of the category of enzymes and catalysts or even define the terms. In addition there are no details given about the formula except for the detail that the formula is proprietary. The applicant further claims that the fungus spores and mycelia are neutralized on contact by the formula. However, the specification does not

explain, "What is neutralizing of protein?" and "How does the formula neutralize fungal protein?" Therefore, the claims contain the subject matter that is critical or essential but has not been described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. As described earlier in this office action to expedite prosecution, "consisting " would be considered to mean, "comprising" for the purpose of this office action and "neutralizing the protein" would be considered an inherent result and effect of the action of the enzyme/catalyst.

18. Claims 1 and 4- 6 are rejected under 35 U.S.C. 102(b) as being anticipated by **Ashizawa** (EP 679334 A2).

19. Claim 1, recites a composition comprising of plant-derived non-toxic organic enzymes and catalysts that target plant fungi. In regards to claim 1 Ashizawa teaches

plant-derived enzymes (abstract) that protect fruits and vegetables against fungi (abstarct). The enzymes (catalysts) disclosed by Ashizawa attack the cell walls of the fungus (chitinase) and the other enzyme peroxidase (page 2, lines 44-58) has fungistatic effect, i.e., it stops the growth of fungus and oxidizes fungal protein and neutralization of protein is considered to be an inherent result and effect of the enzyme/catalyst. The composition disclosed by Ashizawa can be administered in liquid form (page 3, lines 22-27) and can be used in the form of pre-or post-harvest protection of crops (page 3, line 52). Therefore applicant's recitation of claim 1 is clearly anticipated by Ashizawa.

20. Claims 4-6 recite various methods of application of the liquid antifungal composition by spraying, atomization, dipping, soaking and drenching. Ashizawa discloses spraying, dipping, drenching and use of waxes to coat the fruits or vegetables or plants (page 3, lines 54-56), therefore, claims 4-6 are anticipated by Ashizawa.

21. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by **Ryals et al** (US Patent Number 5631007).

22. In regards to recitation of claim 1 as described above, Ryals et al. teach plant-derived enzymes (columns 3 and 8) that protect fruits and vegetables against microbial invasion including fungi (column 4, lines 10-12). The enzymes disclosed by Ryals et al. attack the cell walls of the fungus (column 3, lines 35-42) and the peptide (which may or may not be an enzyme) has the ability to act on the cell membrane (column 3, lines 35-

45) and neutralizing of protein is considered to be an inherent result and effect of the action of the enzyme/catalyst. As disclosed, the peptide works to activate the enzyme, i.e., the peptide acts as a catalyst (column 4, lines 55-65). The composition disclosed by Ryals et al. can be administered in liquid form (column 5, lines 25-31). Therefore applicant's recitation of claim 1 is clearly anticipated by Ryals et al.

23. Claim 6 recites drenching the citrus fruit in wax-based substance as another method of treatment and Ryals et al. disclose paraffin (a wax) among the list of suitable solvents (column 6, lines 21-26). Ryals et al. do not use the term "drenching "; however, pouring of the treatment liquid is one of the methods of application mentioned (column 6, lines 6-10). If a liquid is poured on to a fruit, it will get drenched in the liquid, therefore, claim 4 is readable on Ryals et al.

Therefore, claims 1 and 6 are clearly anticipated by Ryals et al.

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

26. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ashizawa** (EP 0679334 A2) in view of **Hulls** (US Patent Number 5662267). To expedite prosecution, "particle " would be considered to mean, "droplet".

27. Ashizawa (EP 0679334 A2) is applied as above in regard to claim 1. Claim 2 recites the step of treatment of the produce by spraying where the liquid particles are greater than 15 micron. Ashizawa discloses spraying as one of the methods of application for their composition (page 3, lines 53-56).

28. Claim 2 differs from Ashizawa in the fact that it does not teach the droplet size of the sprayed liquid enzyme based fungicide. Hulls teaches a sprayer that is capable of producing a spray with the droplet size in the range of 30-60 microns to provide a more efficient and cost effective method for applying agents to vegetation or crops (column 5, lines 13-16). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify Ashizawa, and include the droplet size for spraying, since Hull teaches a sprayer that provides the recited droplet size in an

efficient and cost effective manner. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

29. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ashizawa** (EP 0679334 A2) in view of **Hsu** (US Patent Number 5857626).

30. Ashizawa is applied as above in regard to claim 1. Claim 3 recites the step of atomization of fruit with particles less than 7 microns; Ashizawa is silent about atomization of the enzymatic composition however, it is well known in the art that atomization is a special case of spraying and spraying is taught by Ashizawa as one of the methods of application (page 3, lines 53-56).

31. Claim 3 differs from Ashizawa in the fact that it does not teach the droplet size of the atomized liquid enzyme based fungicide. Hsu teaches an atomizer that is capable of producing a superfine spray with the droplet size that can be varied from 1-16 microns (column 3, lines 10-12) and can be used for spraying a pesticide or fumigant or plain water to achieve better diffusion of the agent being atomized (column 3, lines 15-18).

32. It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify Ashizawa, and include the recited droplet size for atomization since Hsu teaches an atomizer that produces droplets in the recited range in order to achieve better diffusion of the atomized liquid (water, pesticide, etc.). One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

33. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ryals et al** (US Patent Number 5631007) in view of **Hulls** (US Patent Number 5662267). To expedite prosecution, "particle " would be considered to mean, "droplet".

34. Ryals et al. is applied as above in regard to claim 1. Claim 2 recites the step of treatment of the produce by spraying where the liquid particles are greater than 15 microns; Ryals et al. disclose spraying as one of the methods of application for their composition (column 6, lines 6-10).

35. Claim 2 differs from Ryals et al. in the fact that it does not teach the droplet size of the sprayed liquid enzyme based fungicide. Hulls teaches a sprayer that is capable of producing a spray with the droplet size in the range of 30-60 microns to provide a more efficient and cost effective method for applying agents to vegetation or crops (column 5, lines 13-16). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify Ryals et al., and include the droplet size for spraying, since Hull teaches a sprayer that provides the recited droplet size in an efficient and cost effective manner. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

36. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ryals et al** (US Patent Number 5631007) in view of **Hsu** (US Patent Number 5857626).

37. Ryals et al. is applied as above in regard to claim 1. Claim 3 recites the step of atomization of fruit with particles less than 7 microns; Ryals et al. describe atomization as one of the methods of application for their composition (column 6, lines 6-10).

38. Claim 3 differs from Ryals et al. in the fact that it does not teach the droplet size of the atomized liquid enzyme based fungicide. Hsu teaches an atomizer that is capable of producing a superfine spray with the droplet size that can be varied from 1-16 microns (column 3, lines 10-12) and can be used for spraying a pesticide or fumigant or plain water to achieve better diffusion of the agent being atomized (column 3, lines 15-18).

39. It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify Ryals et al., and include the recited droplet size for atomization since Hsu teaches an atomizer that produces droplets in the recited range in order to achieve better diffusion of the atomized liquid (water, pesticide, etc.). One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

40. The prior art made of record as part of USPTO form 892 contains references that have not been relied upon in this office action but are considered pertinent to applicant's disclosure. These references disclose antimicrobial compositions, antifungal enzyme(s) or polypeptides or proteins, natural food preservatives and agrochemical compositions, antifungal compositions for biocontrol of post-harvest decay of plants and methods of application of antimicrobial agents to fruits and vegetables.

Remarks/Conclusion

No claim is allowed.

Note:

Since neither the claims nor the specification provided by the applicant defines the terms "enzyme" and "peptide" dictionary definitions have been used for the purpose of this office action.

Enzyme/ Catalyst Definition

Source1: The American Heritage® Stedman's Medical Dictionary

Source 2: Merriam-Webster's Medical Dictionary, © 2002 Merriam-Webster, Inc.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jyoti Chawla whose telephone number is (571) 272-8212. The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jyoti Chawla 12/30/05

Jyoti Chawla
Examiner
Art Unit 1761

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700